

# Teenagers' Beliefs About AIDS Education and Physicians' Perceptions About Them

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*A survey of 189 Louisiana teenagers and 80 Louisiana family physicians revealed that the teenagers overwhelmingly preferred to learn about acquired immune deficiency syndrome (AIDS) from a physician. This result stimulated an interest in learning whether family physicians shared adolescents' opinions that they are the best teachers for AIDS education and whether family physicians understand adolescents' knowledge and beliefs about AIDS sufficiently well to be effective AIDS educators. Family physicians' responses to a questionnaire based, in part, on the Health Belief Model were compared with teenagers' responses about their knowledge, health beliefs, and preferred format and method of learning about AIDS.*

*Results indicated that family physicians' predictions about teenagers' knowledge and beliefs about AIDS were not always accurate, but, except when physicians underestimated the teenagers' perceived obstacles to AIDS prevention, the data suggested that physicians would be effective in teaching teenagers about AIDS. Family physicians showed good agreement with teens in estimating their desired method and format for learning about AIDS, including their preference for a physician instructor.*

Acquired immune deficiency syndrome (AIDS) first came to world attention in 1981, and since that time more than 60,000 cases in the United States have been reported to the Centers for Disease Control (CDC), which declared AIDS an epidemic in 1982.<sup>1,2</sup> The incidence of persons with AIDS under 18 years of age has remained under 2% of the total afflicted population, and most of those cases are due to either blood transfusions or vertical transmission from infected mothers. As AIDS continues to spread into the heterosexual population, however, sexually active teenagers become increasingly vulnerable and present a particular challenge for disease prevention. In fact, because of the long latency period of AIDS, it even could be said that any adult manifesting AIDS or AIDS-related complex (ARC) between the ages of 20 and 25 years contracted the infection during adolescence.

Sexuality comes to the fore during adolescence, and an increasing proportion of teenagers are sexually active. In

the United States alone, 12 million of the 29 million adolescents aged between 13 and 19 years are sexually active.<sup>3</sup> These facts alone do not indicate that adolescents are more at risk for AIDS than are other segments of the sexually active population. Unfortunately, however, there are specific behavioral data to suggest that they may be at higher risk. While the long mean latency period (5 years or longer) between infection by the human immunodeficiency virus and contracting a full-blown case of AIDS makes it impossible to know how many adolescents are already seropositive without being ill, surrogate evidence concerning teenagers' unprotected sexual contacts is available from two sources: teenage pregnancy and teenage sexually transmitted disease (STD) statistics. Because the most realistic protection against AIDS (short of total abstinence) is "safer sex" (using condoms, withdrawal, and mutual masturbation), statistics about teenage pregnancy and STD (where safer sex clearly was not practiced) suggest trends that may be repeated with AIDS.

An alarming fact of STD is that it is on the rise among teenagers. Of the more than 1 million cases of gonorrhea reported nationally each year, the greatest rise in recent years has been among children aged 10 to 14 years. Of the 8 to 12 million cases of STD reported each year, the Department of Health and Human Services 1980 statistics

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TABLE 1. DEMOGRAPHIC CHARACTERISTICS ABOUT PHYSICIANS AND TEENAGERS: PERCENTAGES BY GROUP

Characteristic	Teenagers	Physicians
<b>Race</b>		
White	69.1	82.5
Black	28.7	1.8
Oriental	0.0	1.8
Spanish surname	1.6	10.5
Other	.5	3.5
<b>Religion</b>		
Roman Catholic	72.6	41.7
Protestant	13.4	35.4
Jewish	2.1	6.3
Other	11.7	16.7
<b>Sex</b>		
Male	78.2	83.0
Female	21.8	17.0
<b>Age (years)</b>		
	13-19 (range) (median = 17)	26-70 (range) (median = 42)

indicate that about 75% are found among young people aged between 15 and 24 years.<sup>4</sup> The highest incidence of STD occurs in sexually active 15- to 19-year-olds as a result of age-related patterns of sexual behavior as well as of biological factors that may increase susceptibility to certain STDs.<sup>5</sup> Whereas reported statistics for some STDs have declined overall during the past 6 months, they have risen for teenagers.<sup>6</sup> This finding strongly suggests that adult populations, fearful of AIDS, have modified their sexual practices and adopted safer-sex measures, whereas teenagers have not done so.

Statistics concerning adolescent pregnancy are equally alarming. The teenage birth rate in the United States is among the highest in the world. The Guttmacher Institute reports that teenagers account for 46% of all out-of-wedlock births, even though they represent only 18% of sexually active women.<sup>3</sup> The same study estimates that if current trends are not reversed, 40% of today's 14-year-old girls will become pregnant at least once while still in their teens, 20% will give birth at least once in these years, and 15% will undergo at least one abortion in their teenage years.

Given that millions of hours and dollars have been spent trying to find a solution to the related problems of teenage pregnancy and venereal disease with disappointing results, it is obvious that new approaches—including high involvement of primary care physicians as providers of AIDS education—must be found for the AIDS challenge. It would be comforting to assume that AIDS, being 100% fatal and having no cure, will be more amenable to prevention than pregnancy or venereal disease. That assumption,

however, must be tested given the high stakes of protecting the lives of the future generation.

A well-known phenomenon in disease prevention is that knowledge about disease is not always followed by appropriate action. The gap between adolescent knowledge and actions is more than theoretical in the case of AIDS. Strunin and Hingson<sup>7</sup> conducted a random sample survey of 860 adolescents aged 16 to 19 years in Massachusetts and found that of the 70% who said they were sexually active, only 15% of them reported changing their sexual behavior because of AIDS. DiClemente et al<sup>8,9</sup> found great variability in knowledge about AIDS, particularly about the preventive measures that may reduce the risk of infection.

For the past decade, the Health Belief Model has been used to describe the elements that must be present if health knowledge is to be followed by appropriate action.<sup>10,11</sup> The Health Belief Model has been applied to the study of preventive health behavior including educational efforts aimed at altering sexual behavior.<sup>12-14</sup> Briefly, the following are the major dimensions of the Health Belief Model:

*Perceived susceptibility*—the individual's sense of vulnerability to AIDS

*Perceived seriousness*—the individual's feelings about the seriousness of contracting AIDS

*Perceived benefit*—the individual's sense of whether a particular health action is feasible and efficacious

*Perceived obstacles*—the individual's assessment of the negative aspects of particular health action and whether its benefits may outweigh its costs

*Perceived likelihood*—the individual's sense of whether he or she is likely to adhere to a recommended health action

## METHODS

To test whether adolescents' health beliefs suggest that they would translate knowledge into AIDS-preventing behaviors, a questionnaire was constructed incorporating the major dimensions of the Health Belief Model. A number of the items were similar to ones used by Simon and Hingson<sup>12</sup> in their venereal disease questionnaire targeted at teenagers. The following subscales were developed: (1) knowledge about AIDS (Knowledge), (2) perceived vulnerability to AIDS (Vulnerability), (3) perceived seriousness of AIDS (Seriousness), (4) perceived obstacles to action against AIDS (Obstacles), (5) perceived helpfulness of taking action against AIDS (Helpfulness), and (6) perceived likelihood of taking action against AIDS (Likelihood). In addition, a number of questions were asked about adolescents' preferred methods of receiving education about AIDS.

TABLE 2. PHYSICIANS' (n = 80) VS TEENAGERS' (n = 189) KNOWLEDGE AND HEALTH BELIEF MODEL DIMENSIONS\*

Group	Health Belief Model	Mean	Standard Deviation	t	P
Physicians Teens	Knowledge	9.725	2.465	-5.48	.001
		11.346	1.538		
Physicians Teens	Vulnerability	2.100	1.411	-6.94	.001
		3.307	1.047		
Physicians Teens	Seriousness	3.987	1.131	-2.04	.043
		4.273	.854		
Physicians Teens	Barriers	2.450	1.942	-8.97	.001
		4.468	.843		
Physicians Teens	Helpfulness	4.663	1.292	.17	.864
		4.634	1.347		
Physicians Teens	Likelihood	3.963	1.522	.03	.975
		3.956	1.640		

\*Scores are based on the number of correct responses with a maximum score of 14 for Knowledge and of 5 for all other dimensions indicating the greatest perceived Vulnerability, Seriousness, etc

By administering the same questionnaire to both adolescents and family physicians, an answer could be formulated to the following questions: (1) Do family physicians share adolescents' opinions that they are the best teachers for AIDS education? and (2) Do family physicians understand adolescents' knowledge and beliefs about AIDS sufficiently well to be effective AIDS educators?

To this end, 80 Louisiana family physicians attending a continuing medical education conference were surveyed using an instrument identical to the one 189 teenagers attending six different AIDS seminars in the greater New Orleans metropolitan area had answered previously. The teenagers answered the questionnaire voluntarily before the seminar. In fact, the researchers viewed the follow-up seminar as an ethically necessary follow-up to the questionnaire. All seminars were sponsored by a school or youth group because their parents and adult leaders were interested in having the students learn more about AIDS. All of the students attended high school, not college or elementary school. Thus, at the time of the questionnaire's administration prior to the seminar, the teenagers in the sample did not differ from other teenagers not attending similar AIDS education programs. Further, because AIDS education was chosen as an activity by the school and youth group leaders for a "captive" group of teenagers, they cannot be assumed to have any greater interest in or knowledge of AIDS than other teenagers whose parents, teachers, and youth leaders want them to be informed about the disease.

The same questionnaire was distributed to the family physicians by the investigators during registration for the

conference and was collected before the opening session began. Physicians were instructed to answer the questionnaire as if they were a teenager; that is, to use their best judgment as to how a "typical" teenager in their practice would respond. Demographic information about the family physician and adolescent groups is presented in Table 1.

## RESULTS

Mean differences between the teenagers' and the family physicians' responses were analyzed using the *Statistical Package for the Social Sciences* (SPSS). *t*-Test analyses were performed for each of the following subscales: Knowledge, Vulnerability, Seriousness, Obstacles, Helpfulness, and Likelihood. Results (Table 2) showed several differences between teenagers' actual responses and the family physicians' estimations of their responses. Specifically, family physicians underrated teenagers' knowledge about AIDS ( $P < .001$ ); teenagers actually knew more factual information about AIDS than family physicians expected they would; and family physicians underestimated teenagers' perceived vulnerability to AIDS ( $P < .001$ ) and the obstacles they perceived in taking preventive actions against AIDS ( $P < .001$ ).

In terms of their ability to predict correctly teenagers' preferences for learning about AIDS, family physicians were quite accurate. While the percentages for each response were not identical (nor were they expected to be), they were in the same order of magnitude and direction as

**TABLE 3. PERCENTAGE OF PHYSICIANS' PERCEPTIONS OF AND TEENAGERS' ACTUAL AGREEMENT WITH KNOWLEDGE ITEMS**

Question	Physicians	Teenagers
AIDS is a medical condition in which the body cannot fight off diseases	89.7	95.2
Most gay people have AIDS	66.2	34.0
Just being around someone with AIDS can give you the disease	40.5	1.1
Having sex with someone who has AIDS is one way of getting the disease	97.2	98.9
It is possible to tell if people have been exposed to AIDS just by looking at them	15.2	7.0
Most people who get AIDS usually die from the disease	96.2	90.9
Using a condom (rubber) during sex can lower the risk of getting AIDS	91.2	95.2
Receiving a blood transfusion infected with the AIDS virus is one cause of AIDS	95.0	95.2
A person can get AIDS by using the needle of a drug user who has the disease	93.8	97.9
Only gays and drug abusers can get AIDS	41.2	1.1
AIDS can be cured if treated early	32.5	9.1
Most people diagnosed with ARC also have AIDS	53.2	39.6
A new vaccine has recently been developed for the prevention of AIDS	37.5	15.5
A person can take a blood test to see if he or she has been exposed to AIDS	94.9	99.5

the teenagers' in almost every case. The physicians did recognize themselves as the preferred instructor for AIDS education, and their other responses are equally correct except for minor differences. The exact percentages for each item are presented in Table 3. Family physicians

thought teenagers would say AIDS education should begin in grade 6, but in actuality they said grade 8.

To investigate possible difference due to varying levels of cognitive development in younger and older adolescents, the responses of younger (16 years and younger) and older (17 years and older) teenagers were analyzed separately. No statistically different results were found, but intelligence quotient data were not available, so analyses including intelligence, as well as age, could not be performed.

## DISCUSSION

The family physicians' ability to predict teenagers' beliefs about the Health Belief Model's major dimensions was mixed. Although there were no differences in the correspondence between teenagers' and family physicians' ratings of teenagers' perceived seriousness of AIDS or the benefits of taking preventive action against AIDS, family physicians underestimated teenagers' knowledge about AIDS, their perceived vulnerability to AIDS, and the obstacles teenagers perceive to preventing AIDS.

These errors can affect family physicians' potential in educating adolescents about AIDS prevention. For instance, underestimating the obstacles teenagers perceive to preventing AIDS could affect the ability of family physicians to have an impact on teenagers' high-risk AIDS behaviors. Teenagers apparently perceive that the obstacles (trouble) to AIDS prevention outweigh any possible positive effects. Clearly, more information is needed about the precise obstacles teenagers identify to practicing safer sex, an area for follow-up research. In addition, family physicians (and others involved in educating teenagers about AIDS) must do their best to identify the specific obstacles the particular teenagers in their care perceive to AIDS prevention.

That family physicians underestimate teenagers' perceived level of vulnerability is also important. In terms of the Health Behavior Model, the greatest challenge in educating teenagers about the dangers of AIDS is that they feel invulnerable to the disease. Teenagers rate their personal vulnerability to AIDS lower than any other dimension of the Health Behavior Model (even lower than the obstacles to safer sex). Family physicians, therefore, are clearly on the right track when they think teenagers underestimate their vulnerability. In fact, that family physicians appear to be sensitive to teenagers' perception about their vulnerability is fortunate, as this issue deserves careful attention in any AIDS prevention efforts directed at adolescents. In short, although family physicians were not accurate in estimating teenagers' perceived vulnerability to AIDS, they erred in a direction that would not prevent them from being effective teachers about AIDS for teenagers.

Similarly, that family physicians underestimate teenagers' knowledge about AIDS is not an error that would reduce the quality of their AIDS prevention instruction—provided that factual knowledge is not the exclusive topic addressed. It has been well established by this and previous studies that knowledge alone does not affect high-risk behaviors for AIDS. Family physicians as teachers should not fool themselves into thinking that if they have provided the facts, they have immunized their patients against AIDS. Above all, AIDS prevention must address dimensions of the Health Behavior Model other than factual knowledge (particularly teenagers' perceived vulnerability to AIDS and obstacles to practicing safer sex) if adolescent resistances to safer sex practices are to be overcome.

Family physicians show remarkable concordance with teenagers in their responses concerning the preferred method and format for learning about AIDS prevention. Teenagers prefer an expert approach from a physician or other medical professional. Interestingly, however, teenagers do not favor a one-on-one or intimate setting. Anonymous situations, such as large group discussions, expert panels, and films, are preferred by teenagers, as family physician respondents correctly anticipated. The implications are that family and other physicians need to (1) get out of their offices and into the schools more often than most of them currently do, and (2) arrange other group formats with "captive" adolescent audiences (eg, church, scout meetings, Indian Guides) where the AIDS information can be presented.

In summary, family physicians' predictions about teenagers' knowledge and beliefs about AIDS were not always accurate, but, with the exception of underestimating perceived obstacles to prevention, their predictions were in a direction favorable to effective AIDS instruction for teenagers. Family physicians showed good agreement with teenagers in estimating their preferred method and format for learning about AIDS. It is hoped that family physicians' sensitivity and professional knowledge about teenagers,

as reflected in their questionnaire responses, means that they will be willing to devote increased time to teaching them about the risks of AIDS. The price for failure is too high for less-than-best efforts of all responsible adults, especially of family physicians and other members of the medical profession in whom adolescents place their faith.

## References

1. Cowan MJ: Pediatric Acquired Immunodeficiency Syndrome (PAIDS). Hearing before a Subcommittee of the Committee on Government Operations, House of Representatives, Ninety-Ninth Congress, First Session, July 3, September 13, and December 2, 1985
2. Rogers MF: AIDS in children: A review of the clinical, epidemiological and public health aspects. *Pediatr Infect Dis* 1985; 4:230-236
3. Ursuher AE: *Teenage Pregnancy: The Problem That Hasn't Gone Away*. New York, The Alan Guttmacher Institute, 1981
4. Papalia DE, Olds SW: *A Child's World: Infancy Through Adolescence* (ed 3). New York, McGraw-Hill, 1982
5. Johnson J: Sexually transmitted diseases in adolescents. *Primary Care* 1987; 14:101-120
6. Pope J: Gonorrhea cases down in New Orleans but up among children, teenagers. *Times Picayune*, March 14, 1987, p. 1, Metro News Section, col 1
7. Strunin L, Hingson R: Acquired immunodeficiency syndrome and adolescents: Knowledge, beliefs, attitudes and behaviors. *Pediatrics* 1987; 79:825-828
8. DiClemente RJ, Zorn J, Tamoshok L: Adolescents and AIDS: A survey of knowledge, attitudes and beliefs about AIDS in San Francisco. *Am J Public Health* 1986; 76:1443-1445
9. DiClemente RJ, Zorn J, Tamoshok L: The association of gender, ethnicity, and length of residence in the Bay Area to adolescents' knowledge and attitudes about acquired immune deficiency syndrome. *J Appl Soc Psychol* 1987; 17:216-230
10. Janz NK, Beck MN: The Health Belief Model: A decade later. *Health Educ Q* 1984; 11:1-47
11. Rosenstock IM: The Health Belief Model and preventive health behavior. *Health Educ Monogr* 1974; 2:384-386
12. Simon L, Hingson R: Acquired immunodeficiency syndrome and adolescents: Knowledge, beliefs, attitudes, and behaviors. *Pediatrics* 1984; 11:403-408
13. Eisen M, Zellman GL, McAlister AL: Adolescents' fertility control. *Health Educ Q* 1985; 12:185-210
14. Eisen M, Zellman GL: Predicting adolescents' sexuality knowledge. *Health Educ Q* 1986; 13:9-22